Nucleotide sequence of a full length cDNA clone encoding a polyubiquitin gene from Pisum sativum.

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Nucleotide sequence of a full length cDNA clone encoding a polyubiquitin gene from *Pisum sativum*

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We have isolated two cDNA clones, PCU1 and PCU2, from a pea leaf cDNA library using a nucleotide probe from an *S. pombe* ubiquitin gene (Powell and Watts, unpublished data). The two clones encode different polyubiquitin genes, with 80% homology at the nucleotide level, and 79% and 76% homology respectively with the *S. pombe* gene probe. The sequence of a full-length clone, PCU1, is shown below. The inferred polypeptide contains five tandem copies of ubiquitin, with an additional Phe at the C terminus. Comparison with other plant polyubiquitin genes indicates that there is total conservation at the protein level, with the highest homology at the DNA level (82%) with Soybean polyubiquitin (19).

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                  M  Q  I  F  V  K  T  L  T  G  K  T  I  T  L  E  V  E  S  S  D  T  I  D
GAATTCCGATAATTATAAGATGCAAATTTTCGTTAAGACCCTCACCGGCAAGACCATCACTCTTGAAGTTGAGAGTTCAGATACCATAGA      90

  M  V  K  A  K  I  Q  D  K  E  G  I  P  P  D  Q  Q  R  L  I  F  A  G  K  Q  L  E  D  G  R
CAATGTTAAGGCCAAGATTCAAGACAAGGAAGGGATCCCCTCCTGACCAGCAGCGTCTCATTTTTGCTGGCAAGCAACTCGAGGATGGGCG     180

  T  L  A  D  Y  N  I  Q  K  E  S  T  L  H  L  V  L  R  L  R  G  G  M  Q  I  F  V  K  T  L
TACTCTTGCTGATTACAACATACAGAAGGAGTCCACCCTCCATCTTGTGTTGCGACTTCGTGGTGGGATGCAAATCTTTGTGAAGACTCT     270

  T  G  K  T  I  T  L  E  V  E  S  S  D  T  I  D  N  V  K  A  K  I  Q  D  K  E  G  I  P  P
CACTGGAAAGACCATCACCCTTGAGGTGGAGAGCTCTGATACCATTGACAATGTCAAGGCCAAGATCCAGGACAAAGAGGGCATTCCCCC     360

  D  Q  Q  R  L  I  F  A  G  K  Q  L  E  D  G  R  T  L  A  D  Y  N  I  Q  K  E  S  T  L  H
AGACCAACAAAGGCTCATCTTTGCTGGCAAACAGCTCGAAGATGGCAGAACTTTGGCCGATTACAACATCCAGAAAGAATCCACCCTCCA     450

  L  V  L  R  L  R  G  G  M  Q  I  F  V  K  T  L  T  G  K  T  I  T  L  E  V  E  S  S  D  T
TCTTGTGTTGCGACTTCGTGGTGGTATGCAGATTTTTGTGAAGACCCTTACCGGCAAGACAATTACTTTGGAGGTTGAGAGCTCTGACAC     540

  I  D  N  V  K  A  K  I  Q  D  K  E  G  I  P  P  D  Q  Q  R  L  I  F  A  G  K  Q  L  E  D
AATTGACAATGTGAAGGCCAAGATACAGGACAAGGAGGGTATTCCTCCAGACCAGCAAAGGTTGATTTTTGCTGGAAAGCAGCTCGAAGA     630

  G  R  T  L  A  D  Y  N  I  Q  K  E  S  T  L  H  L  V  L  R  L  R  G  G  M  Q  I  F  V  K
TGGCCGAACTTTGGCCGACTACAACATTCAGAAAGAATCAACCCTCCATCTTGTTTTGAGACTTCGTGGTGGTATGCAGATTTTTGTGAA     720

  T  L  T  G  K  T  I  T  L  E  V  E  S  S  D  T  I  D  N  V  K  A  K  I  Q  D  K  E  G  I
AACCCTCACCGGCAAGACAATTACTTTGGAGGTAGAGAGCTCAGACACAATTGACAATGTGAAGGCCAAGATACAGGACAAGGAGGGTAT     810

  P  P  D  Q  Q  R  L  I  F  A  G  K  Q  L  E  D  G  R  T  L  A  D  Y  N  I  Q  K  E  S  T
CCCTCCAGACCAGCAAAGGTTGATTTTTGCTGGAAAGCAGCTTGAAGATGGCCGAACTTTGGCTGATTACAACATTCAGAAGGAGTCCAC     900

  L  H  L  V  L  R  L  R  G  G  M  Q  I  F  V  K  T  L  T  G  K  T  I  T  L  E  V  E  S  S
CCTTCACCTTGTCCTTCGTCTGAGGGGAGGTATGCAGATCTTTGTGAAGACTTTGACAGGAAAGACTATTACCTTAGAGGTAGAAAGTTC     990

  D  T  I  D  N  V  K  A  K  I  Q  D  K  E  G  I  P  P  D  Q  Q  R  L  I  F  A  G  K  Q  L
AGACACAATCGATAATGTGAAGGCAAAAATACAGGACAAGGAGGGAATCCCACCAGATCAGCAGAGGTTGATCTTTGCTGGGAAGCAATT    1080

  E  D  G  R  T  L  A  D  Y  N  I  Q  K  E  S  T  L  H  L  V  L  R  L  R  G  G  F  *
GGAGGATGGAAGGACTCTTGCTGACTACAACATTCAGAAGGAGTCTACTCTTCACCTTGTTTTGCGTCTTCGTGGTGGATTTTAAGAATT    1170

GTATTGGGACCGAAACCGTAAACCGTTTATAGTCTTTGGCTTTTATGTTTCAGAACTTGTATAATGGATCC                    1241
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References

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